Columbia Generating Station
2Q/2005 Plant Inspection Findings

Initiating Events

Significance: G Sep 27, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Ash Fall Procedure
The NRC identified a noncited violation of Technical Specification 5.4.1.a associated with an inadequate procedure. Procedure ABN-ASH, Ash Fall, which identified Energy Northwest actions in the event of a volcanic eruption in the Pacific Northwest, was inadequate in that it defined design basis ash fall conditions at the site which could not be readily measured. In the event design basis ash fall conditions were to occur, Procedure ABN-ASH directed reducing power, scramming the reactor, and cooling down to cold shutdown. Without readily measurable criteria, the operators may not recognize design basis ash fall conditions and therefore may not initiate a reactor shutdown and cooldown in accordance with Procedure ABN-ASH prior to the degradation of balance of plant equipment. A human performance crosscutting aspect was identified for the inadequate procedure which could not be readily implemented as written. A problem identification and resolution crosscutting aspect was identified for the issue not being documented in the corrective action program until prompted by the inspectors. The immediate corrective actions that were taken included revising Procedure ABN-ASH to establish readily measurable criteria indicative of the site reaching design ash fall conditions.

This finding was greater than minor because it involved a procedure quality issue which affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The finding was evaluated using Manual Chapter 0609, Significance Determination Process, Phase 1 worksheet. The finding was determined to be of very low safety significance (Green) because it was not associated with a loss of coolant accident initiator, it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions were not available, and it did not increase the likelihood of a fire or internal/external flood.

Inspection Report# : 2004005*(pdf)*

Significance: G Aug 17, 2004
Identified By: Self Disclosing
Item Type: FIN Finding
Inadequate Monitoring of Hotwell Level Contributes to Loss of Reactor Feedwater
A self-revealing finding associated with control room operators failure to adequately monitor condenser hotwell level occurred when hotwell level was established high in the indicating range and above the hotwell level high level alarm. This condition resulted in the associated hotwell level high level annunciator being locked in and was effectively out of service. A manual reactor trip was initiated when the hotwell level excursion resulted in the loss of the only operating reactor feedwater pump.

This finding is greater than minor because it was a human performance issue which impacted the initiating events cornerstone objective. Specifically, adequate compensatory actions were not put in place to address the hotwell level high level annunciator. This finding had crosscutting aspects in the area of human performance in that adequate monitoring of hotwell level was not implemented which contributed to the reactor scram.
Inspection Report# : 2004004*(pdf)*

Significance: G Jul 30, 2004
Identified By: Self Disclosing
Item Type: FIN Finding
Failure to Follow Clearance Order Instruction Results in Loss of Reactor Feedwater
A self-revealing finding occurred when an equipment operator failed to follow a clearance order instruction when filling and venting a condensate heat exchanger. This action resulted in a low suction trip of a reactor feedwater pump, the loss of reactor feedwater and a subsequent manual reactor scram.

This finding is greater than minor because it was a human performance issue which impacted the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. This finding had crosscutting aspects in the area of human performance in that adequate pretask briefings were not performed for the operator placing the feedwater heater back into service and that the operator failed to follow a clearance order which resulted in the loss of reactor feedwater. A Phase 2 evaluation was performed in briefings were not performed for the operator placing the feedwater heater back into service. A Phase 2 evaluation was performed in accordance with Manual Chapter 0609, "Significance Determination Process," based on the finding contributing to both the likelihood of a

reactor trip and that mitigation functions would not be available. The Phase 2 review was performed using the Columbia Generating Station site specific worksheets. A senior reactor analyst reviewed the Phase 2 results and performed a limited Phase 3 review. The senior reactor analyst considered the limited time the plant was at a low power level and adjusted the time in power operations to 3 hours. The finding was determined to be of low safety significance. Corrective actions included temporary senior reactor operator oversight of all pretask briefings and remedial training for the individuals involved.
Inspection Report# : 2004004*(pdf)*

Mitigating Systems

Significance: G Apr 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to evaluate the extent of condition for 480 V breaker overcurrent knob settings
Green. The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI (Corrective Actions) for the failure to identify nonconforming breaker settings (conditions adverse to quality). The licensee had identified that overcurrent settings were incorrect for General Electric Type TEC molded-case circuit breakers but did not evaluate the potential for the same problem to occur with other molded case circuit breakers. In response to NRC questions, additional problems were identified. Two safety-related breakers and one non-safety related breaker required recalibration to correctly establish the breaker trip points. The finding had crosscutting aspects associated with problem evaluation.

The failure to perform an adequate engineering evaluation of a condition adverse to quality was a performance deficiency. The finding was more than minor because it affected the mitigating system cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding had very low safety significance because it did not result in a loss of safety function, a loss of a safety-related train for greater than its Technical Specification allowed outage time, the loss of risk-significant non-Technical Specification trains for greater than 24 hours, or screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event.
Inspection Report# : 2005008*(pdf)*

Significance: G Mar 24, 2005
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Failure to Promptly Identify the Cause of ECCS Pump Motor Oil Leaks
A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for a failure of Energy Northwest to promptly identify that the Emergency Core Cooling System pump motor oil reservoir drain plug o-rings had become hardened. Hardened o-rings were considered to be an equipment deficiency that had led to several pump motor drain plug leaks and had been discussed in General Electric Safety Information Letter 484. The finding was identified to have problem identification and resolution crosscutting aspects for the failure to identify the cause of the historical emergency core cooling system pump motor oil leaks prevented appropriate corrective actions from being implemented to ensure the reliability and capability of the affected pumps.

The finding was more than minor because it was an equipment performance issue which affected the mitigating systems cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was considered to be of very low safety significance because the finding was a qualification deficiency which was confirmed to not result in a loss of function per Generic Letter 91-18. Energy Northwest took immediate corrective actions to replace all of the affected drain plugs o-rings.

Inspection Report# : 2005002*(pdf)*

Significance: G Feb 08, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Document, Report, and Correct a Significant Condition Adverse to Quality
A Green NRC identified noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for Energy Northwest's failure to promptly identify cracked emergency core cooling system pump motor oil reservoir drain plugs. The initial condition was identified by Energy Northwest and entered into the corrective action program, however, the subsequent findings were not documented and evaluated through the corrective action program and the extent of the condition determined to assess the impact on other safety-related equipment. This finding has problem identification and resolution crosscutting aspects for the failure of Energy Northwest's engineering staff to appropriately implement the corrective action process to identify and correct the same condition on other emergency core cooling systems pumps.

The finding was more than minor because it was an equipment performance issue which affected the mitigating systems cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding

was considered to be of very low safety significance because the cracked pump motor oil reservoir drain plug did not result in the loss of a safety function of a single train for greater than its Technical Specification allowed outage time. Energy Northwest took immediate corrective actions to replace all of the affected drain plugs.

Inspection Report# : 2005002*(pdf)*

Significance: G Nov 23, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Failure to Verify Test Equipment Configuration
A self-revealing noncited violation of Technical Specification 5.4.1.a was identified for a technician's failure to follow a surveillance procedure. During the conduct of a surveillance test for the reactor core isolation cooling system the technician was directed by procedure to monitor voltage across two terminals, however, the technician inadvertently jumpered across the two terminals. This resulted in an unexpected isolation of the reactor core isolation cooling system for approximately two hours when an isolation signal was generated. This finding had human performance crosscutting aspects in that the technician failed to self-check and verify the configuration of the test equipment prior to use.

This finding was greater than minor because it was a human performance issue which affected the mitigating systems cornerstone objective to ensure the reliability and availability of systems that respond to initiating events to prevent undesirable consequences. The safety significance associated with this performance deficiency was evaluated using the NRC Manual Chapter 0609, Significance Determination Process, Phase 1 Worksheet, under the mitigating system cornerstone. The finding was determined to be of very low safety significance because the finding did not result in the loss of a safety function of a single train for greater than the Technical Specification allowed outage time.
Inspection Report# : 2004005*(pdf)*

Significance: G Aug 24, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Failure to Identify and Return to Service APRM B in a Timely Manner
A self-revealing noncited violation of Technical Specification 5.4.1.a occurred when operators failed to return a nuclear power range instrument to service after bypassing the instrument for a gain adjustment in accordance with a surveillance procedure. This resulted in the instrument being left out of service for an additional seven hours after it was available for use. There were indications readily available to the control room staff to identify the out of service component earlier than when it was finally identified. This finding had cross cutting aspects in the area of human performance in that the nuclear power range instrument was not appropriately returned to service and several opportunities were available, including a shift turnover to identify the condition. Corrective actions included returning the instrument to service and revising the frequency of panel walkdowns in the control room to ensure a more thorough examination of plant indications.

This finding is greater than minor because it involved a configuration control issue which impacted the mitigating systems cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. The issue was of very low safety significance (Green) because the finding did not result in the loss of function of a safety system or represent an actual loss of a safety function of a single train for greater than its Technical Specification allowed outage time.
Inspection Report# : 2004004*(pdf)*

Significance: G Jul 30, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Failure to Communicate Key Annunciators Associated with EOP Entries
A self-revealing noncited violation of Technical Specification 5.4.1.a and Procedure PPM 1.3.1, Conduct of Operations, was identified when a reactor operator failed to identify and communicate to the control room supervisor the reactor pressure vessel high trip annunciator following a reactor scram which occurred on July 30, 2004. An associated operating instruction also provides that during transient/emergency operating procedure implementation that alarms are promptly evaluated and operationally significant alarms are communicated by the operator to the control room supervisor. In addition, the annunciators flagged as potential emergency operating procedure entries are assessed by the operator and communicated to the control room supervisor as emergency operating procedure entry conditions including parameter, value, units, and trend. Human performance crosscutting aspects were identified for this finding involving the operator response to the annunciators and the lack of command and control within the control room that failed to promptly determine the cause for the reactor trip that was later considered in the emergency response managers decision to declare an Alert.

This finding was greater than minor because the failure to properly acknowledge and address annunciators was a human performance error (postevent) which affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. By acknowledging and resetting key annunciators prior to communicating key parameters, values and trends may not be appropriately considered for significance of mitigating system response, emergency operating procedure entry conditions as well as emergency plan implementation. The finding was determined to be of very low risk significance because the finding did not involve a design or qualification deficiency, it did not represent a loss of safety function of a system or train, and was not risk significant because of seismic, fire, or flooding event.

Inspection Report# : 2004005*(pdf)*

Barrier Integrity

Significance: G Oct 27, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Failure to Manually Scram the Reactor
A self-revealing noncited violation of Technical Specification 5.4.1.a was identified for the failure to initiate a manual reactor scram when an equipment operator inadvertently scrammed an individual control rod from position 48 to 14. Abnormal Condition Procedure ABN-ROD, Control Rod Faults, Revision 6, required a manual scram for one or more control rods scrammed but do not indicate full-in. This finding had human performance crosscutting aspects related to the communications between the control room and the operator at the respective hydraulic control unit and for the failure to follow Procedure ABN-ROD and manually scram the reactor. Corrective actions included plant management reinforcing the requirement to immediately scram the reactor in the event of an inadvertently scrammed control rod which does not fully insert. The procedure was subsequently revised to rapidly reduce core flow as was done by the operations in response to this event.

This issue affected the barrier integrity cornerstone and is greater then minor because it affects the fuel cladding barrier since failing to scram with a control rod not fully inserted increased the potential for fuel cladding damage. This issue was evaluated using NRC Manual Chapter 0609, Significance Determination Process, Phase 1 Worksheet, under the barrier integrity cornerstone Item 2, Fuel Barrier, and was determined to be of very low safety significance. A review of the thermal limits (nodes) for the adjacent fuel assemblies verified that no limits were exceeded.

Inspection Report# : 2004005*(pdf)*

Emergency Preparedness

Significance: G Jul 30, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Activate the Emergency Response Data System Within One Hour
The inspectors identified a noncited violation for Energy Northwest's failure to activate the Emergency Response Data System within 60 minutes in accordance with 10 CFR 50.72(a)(4) after declaring an Alert on July 30, 2004. This finding had cross cutting aspects in the area of human performance in that Emergency Response Data System was not initiated as required within 1 hour.

The finding is greater than minor because it was associated with an actual event response performance deficiency that affected the emergency preparedness cornerstone objective to ensure that Energy Northwest is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. By not activating Emergency Response Data System within the required time, Energy Northwest hindered the NRC's ability to verify plant conditions to ensure the appropriateness of any licensee recommended emergency response actions. The finding was of very low safety significance because although the finding was associated with an implementation problem during an actual Alert declaration, the failure to comply with the requirements of 10 CFR 50.72(a)(4) did not constitute a failure to implement a risk significant planning standard. Corrective actions included assigning additional on-shift personnel the responsibility of activating Emergency Response Data System to ensure that time requirements are met.
Inspection Report# : 2004004*(pdf)*

Occupational Radiation Safety

Significance: G Oct 07, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Two Examples of Failure to Survey Radiological Conditions
The inspectors reviewed two examples of a noncited violation of 10 CFR 20.1501(a) because Energy Northwest failed to evaluate radiological conditions. One example was self-revealing; one was NRC-identified. In the first example, Energy Northwest failed to evaluate the changing

radiological conditions during gasket replacement on Reactor Water Clean Up Pump 1B. As a result, four workers were internally and externally contaminated. In the second example, also involving the reactor water clean up system, Energy Northwest failed to survey airborne radioactivity before or during work activities on a system pump despite the potential for steam leaks. The findings were entered into Energy Northwest's corrective action program as Condition Reports 2-04-01975 (PER 20400759) and 2-04-04966. The two failures to survey when required was considered to also have cross-cutting elements of human performance.

The finding was more than minor because it was associated with one of the cornerstone attributes (exposure control) and affected the associated cornerstone objective because it resulted in decreased licensee awareness of possible radiological hazards. The occurrence involved individual workers unplanned, unintended doses or potential of such a dose resulting from actions contrary to NRC regulations that could have been significantly greater as a result of a single minor, reasonable alteration of the circumstances.
Inspection Report# : 2004004*(pdf)*

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: N/A Apr 15, 2005
Identified By: NRC
Item Type: FIN Finding
Problem Identification and Resolution
The team reviewed approximately 370 condition reports, apparent and root cause analyses, as well as other documents, to assess problem identification and resolution activities. While the licensee's processes were generally effective, the team observed that, for approximately the last four years, poor electrical engineering evaluations of breaker and switchgear problems resulted in a disproportionate number of NRC identified and self-revealing issues. In addition, several of the findings were related to inadequate consideration of seismic requirements. A similar performance concern was documented in the last problem identification and resolution assessment.

The team concluded that a safety-conscious work environment existed at the Columbia Generating Station. The team determined that employees and contractors felt free to enter issues into the corrective action program and raise safety concerns to their supervision, to the employees concern program, and to the NRC. All the interviewees believed that potential safety issues were being addressed. However, the team received an isolated comment regarding receptiveness of some supervisors to initiating condition reports. Energy Northwest management planned to take corrective measures to address this comment.

Inspection Report# : 2005008*(pdf)*

Last modified : August 24, 2005